

The dental informatics online community

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Received December 10, 2010; Accepted December 15, 2010; Published January 06, 2011

Abstract:

Dental Informatics (DI) is the application of computer and information science to improve dental practice, research, education, and program administration. To support the growth of this emerging discipline, we created the Dental Informatics Online Community (DIOC). The DIOC provides a dedicated professional home for DI researchers and serves as an open, common, and worldwide forum for all individuals interested in the field. It was created and is maintained by the Center for Dental Informatics at the University of Pittsburgh School of Dental Medicine, independent from any professional association, corporate interest or funding source. The DIOC's Website provides many useful features, such as a learning center, publication archive, member and project directories, and the Current Awareness Service (CAS). The CAS automatically notifies members about new information added to the Community. Notifications are individualized according to a member's profile and activities on the site. The DIOC is a research-oriented online community which provides resources in the dental informatics and dental technology field, as well as a way to establish social connections to share ideas, problems and research opportunities. Member and activity growth since the community's inception in 2005 have been steady, but future sustainability of the community depends on many factors.

Background:

Dental Informatics (DI) is the application of computer and information science to improve dental practice, research and education [1]. Unlike biomedical informatics, DI is a nascent discipline [2], which faces challenges in establishing itself; these include the geographically dispersed and small number of experienced DI researchers, as well as the lack of a dedicated professional society or standing annual conference for DI [3].

The overarching goal of our research is to establish a DI e-community [4] that will help surmount the existing challenges and exploit DI's considerable potential to improve processes and outcomes in dental research, practice, and education. To these ends, and with funding from the US National Institutes of Health and others, we have established the Dental Informatics Online Community (DIOC). The goals of the project are: (1) encouraging and supporting the formation of partnerships and collaborative projects in dental informatics; (2) promoting the development of dental information resources; and (3) disseminating research results and best practices globally. We envision that the DIOC provide a dedicated professional home for DI researchers and serve as an open, common, and worldwide forum for all individuals interested in the field.

Software:

The Center for Dental Informatics at the University of Pittsburgh, School of Dental Medicine created and maintains the DIOC which is available at <http://www.dentalinformatics.org> [5]. **Table 1 (see Supplementary material)** describes some of the features of the DIOC. The Current Awareness Service (CAS) is one of the central aspects of the community. As members input data including personal information, interests, and research projects, they develop an individual profile that drives the CAS. The CAS then automatically generates output in the form of emails tailored to the interests of the individual member as new information is added to the DIOC. For example, if Member A indicates an interest in 3-D imaging and Member B adds a project related to that topic, Member A automatically receives an email about the new project. The CAS provides all members with real-time updates of information on the site, inviting

them back to review it and encouraging them to contribute to the community themselves.

Although we have not formally assessed the usefulness of the CAS, two anecdotal observations indicate that it is useful for members of the community. First, we have received messages from librarians who appreciate receiving updates from the Publication Archive, which they, in turn, forward to dental school faculty and other interested parties. Second, projects in the project directory have received a fair degree of comments and suggestions, indicating that members intrinsically value notifications about new projects.

From the onset of the community, we implemented an audit log architecture which provides detailed usage data based on individual actions on the Website. As of this writing, 1,095 members have registered with the DIOC. Of these, 636 are "active" members, i.e. members who logged in multiple times after registering with the site. The number of registered and active members, however, underestimates the actual usage of the DIOC. More than 45% of all actions on the community are performed by users who do not register and/or log-in.

Future Developments:

The DIOC is a research-oriented online community which provides resources in dental informatics and is a unique place for sharing ideas, learning about DI, establishing relationships, conceiving projects, accessing information resources and contributing to the field. One key factor in the growth and development of the DIOC is to determine how it can evolve into a self-sustaining, long-term professional community. Clearly, the DIOC will have to demonstrate concrete achievements that its members contribute to and identify with in order to increase its value to the dental informatics community and beyond. We are considering the development of a strategic plan to help reach that goal. In the near-term, we will continue hosting the community, adding features and improving the DIOC. In a future evaluation, we will analyze the usage and development of the site over time.

References:

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Edited by F Chiappelli

Citation: Irwin *et al.* Bioinformation 5(7): 307-309 (2011)

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Supplementary material:

Table 1: Features implemented on the current DIOC:

DIOC Feature	Description
Searchable Publication Archive	A bibliography of the DI research literature currently containing over 1,700 publications.
Learning Center	An educational resource for members including: FAQ-style documents, Webcasts, and documents to generate community discussions.
Searchable Member Directory	A directory of all DIOC members. Member profiles include interests, collaboration partners, publications, and also point to information contributed to the DIOC as a trace of the member's activity. This allows DIOC members to construct and develop verifiable identities within the community.
Searchable Project Directory	A directory of member contributed projects for information dissemination, networking with collaborators, and discovering possible funding opportunities.
Informatics Links	Using Delicious, a social bookmarking service, we automatically build and refresh a resource list based on member tagged informational items.
Current Awareness Service	A service that automatically notifies users of the existence of new information added to the community. The notification is customizable according to the member's preferences.